

EXECUTIVE SUMMARY

Following the public procurement procedure launched by the National Office for Research and Technology [*Nemzeti Kutatási és Technológiai Hivatal*] (hereafter: NKTH, the Client), the consortium of Ernst & Young Advisory Ltd. and GKI Economic Research Co. (hereafter: the Consortium or Evaluators) were contracted to carry out '*The comprehensive evaluation of the Research and Technology Innovation Fund between 1 January 2004 to 31 December 2009*'. This document is the Final Evaluation Report.

The scope of the evaluation as well as the key findings and recommendations are summarised below.

Scope of the evaluation

The comprehensive evaluation of the Research and Technology Innovation Fund [*Kutatási és Technológiai Innovációs Alap*] (hereafter: KTI Fund, Fund) operations between 2004 and 2009 in six months proved to be a highly complex and challenging task. The main challenges were as follows:

a.) The innovation concept and the Hungarian innovation strategy

It can be stated that the concept and significance of innovation is ambiguous for the stakeholders. As a result of inadequately defined execution concepts laid down in the governing laws (such as Act XC of 2003 on the Research and Technology Innovation Fund and Act CXXXIV of 2004 on Research and Development and Technological Innovation) and in the Science, Technology and Innovation (STI), strategy, there is an inconsistency observed regarding innovation policy support measures even at the highest levels of decision making.

The different approaches in interpreting and understanding the concept of innovation by those interviewed and asked during the evaluation project has considerably influenced and complicated the evaluation process, because the interviewees providing primary and secondary information, as well as questionnaire respondents and earlier evaluators have widely varying views about the same phenomena.

b.) Availability of data and collecting information

We have carried out a detailed review of official documents and expert reports about the Fund's operations available at NKTH and a string of other documents that are linked with the Fund's operations over the six years evaluated.

From the evaluation methodology perspective, the data about proposals and supported projects, which are prepared and stored in NKTH, contained many errors,¹ which had to be fixed first to make the data suitable for the purposes of evaluation (sufficiently reliable information was available as of the end of April 2010). Analysis of this database, linking the data to other databases and the statistical-econometric modelling carried out using the data linked is an experimental work in this field; and sufficiently robust results are available only for some branches of the business sector.

¹ The main problems to be mentioned include fragmented databases, inaccurate data and in some cases missing data – for statistical-econometric analysis the integrity of databases is crucial.

The database obtained from NKTH was also used for the stratified sampling, with the help of which web-based questionnaires were sent to nearly 5700 participants in various programmes (called BAROSS, TECH, Mecenatúra, Innocsekk, 5LET, RET, Asbóth and NAP). 2129 respondents filled in the questionnaires.

Owing to the foreseen and then evident limitations on data availability, we had to devise different empirical measurements. In view of the large number of stakeholders with different views, we conducted more than 40 in-depth interviews as well as technical discussions with four focus groups. The results are consistent with one another and the evaluation statements regarding the impacts of the Fund are considered robust.

c.) Evaluation approach

Owing to the inherent risks of innovation, one cannot expect that each and every supported project result successful innovation. For this reason, a complex assessment of the effects of funding RDI is necessary – including indirect impacts and behavioural additionalities.

Key findings

a.) Uncertain support for innovation at the Government level

The Research and Technological Innovation Fund was established in 2004, enjoying wide professional and political support. The strong legitimacy was backed by the support from the parliamentary parties, the business sector, higher education institutions, and the Academy of Sciences as well as the European Union's endeavour to support and strengthen innovation, which has been explicitly demonstrated since 2000.

Despite strong legitimacy, neither the strategic statutes nor the application of the policy measures reflect appropriate commitment by the government to consistently support innovation, although supporting R&D&I increases the country's capabilities to produce added value and to strengthen its international competitiveness.

In the period between the Fund's foundation in 2004 up until early 2007, there was no written, government approved innovation strategy. In this period managing the Fund was based mostly on the vision of NKTH's senior management – based on the frequent opinion of interviewees, this vision can be linked with the development needs of the Hungarian innovation system – and this remained at the core of NKTH's programmes and calls for proposals for the ensuing years. However, the strategy has never been widely discussed and was not even disclosed until the end of 2005.

In the course of the lengthy process of the ex-ante discussion of the Government's STI strategy, inconsistency emerged between the above-mentioned hierarchy of strategic objectives and the expanded and generalised objectives of the STI Strategy. The STI strategy approved in 2007 and NKTH's institutional strategy dated December 2007 have set general goals without defining a clear hierarchy of goals or priorities. These documents do not specify the tools to attain the set goals and they do not define the role of the KTI Fund in executing the STI strategy.

Although harmonisation of the government's development policy tools started in the autumn of 2007 as part of the work of the so-called "resource coordination team" set up and managed by the Ministry of Economy and Transport, in the absence of mandatory regulations or a properly authorised and competent co-ordinating organisation, the status of the KTI Fund and its connection to the other related policy tools remains unclear. This situation was aggravated by the fact that

decisions taken regarding the Fund were not supported by evaluations, therefore there was almost no feedback regarding the impact of the interventions implemented during the period under review.

b.) The Fund has a marked and significant impact on the economy

In the period between 2004 and 2009 the Fund paid out funds totalling HUF 180 billion on grants based on proposals and off-tender as well as on tasks related to international obligations. About 95% of this payment was based on proposals. Additionally, about HUF 16 billion was used to finance the Fund's operations, other obligations (eg. membership fees) and the management of the S&T attaché network.

In 2004 to 2008 R&D expenditures accounted for 0.8-1% of Hungary's GDP. According to the official statistics, the share of the KTI Fund in government funded R&D increased from 11.5% to nearly 25% in the reviewed period. This also means that the other forms of government support kept value only at current prices (i.e. in real terms, government R&D funding other than through the KTI Fund, declined). Therefore, other direct R&D support measures were reduced by the government, and, as a result, strong pressure on the Fund by certain stakeholders (primarily by the publicly funded R&D sector, universities, the Academy of Sciences etc.) was observable. In summary, the KTI Fund in the Hungarian R&D funding system has not brought new funds in real terms, because the government reduced public funding for R&D in parallel with the development of the Fund. The KTI Fund was necessary to keep the level of Hungarian public funding on RDI. The process is also related to the fact that since 2006 there were austerity measures, which implied substantial cuts in government spending.

The most notable input impact of the KTI Fund is that it helped the acquisition of new R&D equipment and allowed access to cutting edge R&D infrastructure for those receiving funding. Some major technology programmes (TECH) have also largely contributed to the employment costs of researchers and developers.

The reasoning section of the Act on the Research and Technology Innovation Fund states that one of the goals is to "redirect" to the business sector at least the amount of contributions paid into the Fund by business sector. Although the trend is improving, between 2004 and 2009 the legislator's intention – not to increase the burdens of the business sector at the macroeconomic level, because of the innovation contribution – had not been effected.

The concentration of support financed by the Fund varies significantly in the different sectors. Some major government institutions (e.g. the Academy, large universities) received significantly more support than organisations in other sectors. The concentration of funding is also high among natural persons and is markedly lower in the corporate sector – although there are examples for significant support. On the scale of the national economy, the support by the KTI Fund is channelled to a very small portion of the corporate sector, but to a large portion of the public R&D sector. Nevertheless, financing from the KTI Fund reaches the R&D intensive segment of the SME sector fairly well.

The support by the Fund also had significant impacts on economic output. According to the estimations based on sampling, about 10-15% of the 2,600 companies that received grants had success on the market, thereby the rather small number of competitive and fast-growing Hungarian companies increased. The companies, which implement the projects funded, are much more innovative than the Hungarian average, and in the non-corporate sector the share of institutions, which provide substantial knowledge input to innovations, is also substantial.

Indirectly, in certain sectors (e.g. IT, engineering), the return on funding provided by the KTI Fund is often multiplied. The KTI Fund resulted further spill-over effects as knowledge flows do not stop at institutional boundaries (which means that publicly funded R&D institutions have also played a role in the indirect effects). At the level of the macro-economy, the public funding on R&D resulted considerable additional welfare effects, and not necessarily at the economic agent that received funding.

A shift in the behaviour of the economic agents concerned is also observable. In terms of the expected future innovation output at the national level, it is promising that the Fund's programmes have stimulated real cooperation between the organisations of the different institutional sectors. The corporate sector and the universities / public research institutions have definitely come closer to one another. The non-profit research institutions' awareness to innovations in the long run has improved, the research orientation of researchers has become more practice-oriented.

c.) Managing the Fund calls for significant improvements

In line with international practice, the government support to RDI needs to be under strong professional and social control. Nevertheless, in practice the consultancy and coordination bodies of STI policy has not been operating since 2006, and were not involved in concluding important STI policy decisions, including for instance the developing of the 2007 mid-term STI policy strategy of the Government.

The governance of STI policy and the steering and executing institutions has regularly changed and it cannot be seen if the changes are aligned with a longer-term concept. Operations of the KTI Fund have continually been characterised by institutional and legal uncertainty to date. Developing and executing the grant schemes could not be aligned with a long-term strategy, the KTI Fund, as one of the direct RDI financing tools in the Hungarian support system, constitutes a "quasi-independent" system.

Managing the Fund was continuously hampered by government/Parliamentary decisions, which repeatedly restricted the use of the Fund's cumulated residual funds and which occasionally suspended grant payments already duly awarded. The Fund's original goals, as set out in the underlying act, have been amended by state budget acts several times, when certain budgetary obligations were transferred to the Fund (e.g. payment of Hungary's contribution to the European Coal and Steel Research Fund). These unfavourable external interventions had a substantial disturbing impact on the Fund's independence and on planning use of the Fund. The changes of legislation, which allow for using the Fund for financing not innovation-related purposes, has been opposed by the stakeholders, who uniformly supported the establishment of the Fund in 2004.

The above mentioned had a negative impact on developing and executing the Fund's programmes and grant schemes. Owing to a lack of stability and to frequent organisational changes, the timing of managing the grants and the projects (e.g. contract preparations, reimbursement of costs) was highly hectic and this has had a damaging effect on the quality of technical performance.

We have observed weaknesses in the process of evaluating the proposals (e.g. there were incomplete procedure manuals, sketchy documentation, not sufficient information contained in the letters explaining rejection of proposals etc.). In addition, in some cases and referring to the first half of the period evaluated, some interviewees reported professional and ethical types of conflicts of interest and other not purely professional considerations (about external impacts beyond the

operation and regulation of the Fund) experienced in the decision making process (an in-depth case-by-case assessment was beyond the scope of our review.)

Despite the efforts made, the fragmented nature of NKTH's databases about the proposals and projects as well as the occasionally inaccurate, in other cases missing data records equally hamper strategic management, organisational learning and evaluations.

In general, the grant schemes of the KTI Fund are aligned with the needs of the target groups, however, there is great variance by target groups and grant schemes. Funding projects in consortia – which, in the Hungarian support system is characteristic in case of the KTI funding, first of all – is welcome by the proposers, and the participants of the projects are more or less satisfied with the Implementing Bodies as well.

Until the end of the reviewed period, NKTH performed rather poor monitoring. As a result, the Fund's programmes and projects could not provide the feedback important for programme planning or evaluating the proposals. The Fund does not use indicators to monitor the progress of its mid-term strategy, programmes or projects or to monitor direct and indirect impacts.

In the reviewed period, NKTH commissioned independent experts only occasionally with the task of evaluating the Fund's operation, and no such evaluation was directed towards the Fund's operations or the programmes as a whole. Thus, NKTH could not experience the benefits of constructive feedback. The majority of these evaluation reports were not disclosed to public.

The current management of NKTH (in office since September 2008) also perceived the above weaknesses and efforts have been made to improve the most important areas.

In the reviewed period many organisations contributed to managing the tendering system and the projects from the government side. The parties involved and their respective roles in the system (for example between NKTH and MAG Zrt.) have often changed. This often slowed down and hindered the Fund's efforts to meet its contractual obligations, especially regarding the reimbursement of costs.

Key recommendations

Updating and improving the relevant underlying strategic documents (innovation act, act on the Fund, government STI strategy, NKTH strategy, including, for example, the revision and standard definition of innovation) is needed as well as defining the hierarchy of strategic goals, developing the tools and measures for executing the strategy and identifying the role of the KTI Fund.

It is necessary to plan government funding for RDI in the long run and to better harmonise and co-ordinate the different funds available for RDI (besides the KTI Fund, e.g. the Structural Funds and OTKA first of all). In this context it is important to consider ways to reduce funding of other public R&D tasks, which, albeit important, are not necessarily aimed at innovation. From higher education institutions and the Hungarian Academy of Sciences there is strong pressure for funds from the KTI Fund, because the government reduced other public funding for R&D in parallel with the development of the Fund.

Chapter VII contains detailed recommendations for developing and applying strategy. In order to strengthen strategic decision making, evidence-based decision making is vital. It is necessary to manage the Fund with increased technical expertise and to ensure full compliance with all legal requirements.

We recommend to strengthen the role of the KTI Fund at strategic government level. To this end, it would be important to ensure proper management of the Fund, not influenced by short-term budgetary considerations.

Further increasing the transparency of decision making processes is required as well as the elaboration of further rules – beyond legal stipulations – for handling professional and ethical types of conflicts of interest, the more precise definition of the role of evaluators and selection of evaluators; and documentation and consequent application of these measures.

Based on the evaluation results, the regional innovation policy of NKTH and the Fund requires in-depth review. Despite institutional developments and the significant grants to the regions, the improvement of R&D and innovation activity is not sufficient in the individual regions. We recommend that with the involvement of international experts an overall evaluation be made of all regional innovation programmes and based on these result, a new regional strategy and resource allocation policy should be devised.

In order to measure the Fund's impacts and results, it is required to build and further develop an adequate and reliable IT background that can be used to perform regular statistics. Such a technological platform should also be able to produce up-to-date information for the implementation of the programmes and tenders as well as to follow up the technical and financial aspects of Fund projects.

All grant schemes and financing mechanisms require a system of ex-post evaluations, the results of which should be made public. It is recommended that a systematic ex-post assessment and evaluation of the large programmes and large grants be conducted, including a review of underlying technical considerations and project results achieved. Carrying out such assessments for completed as well as ongoing grants may be considered.

In order to monitor the results of programs and grants it is essential to build and run a continuously operating and relevant technical and professional monitoring system that provides continuous feedback about ongoing projects and allows the Fund management to intervene if necessary.

It is required to prepare the Fund's and NKTH's financial statements in time so that timely decision making is supported, and in a format that allows to assess whether or not compliance with statutory restrictions regarding operational limits were met.

Our detailed recommendations are presented in chapter VII.

Overall, we conclude that the Research and Technology Innovation Fund (KTI Fund) has had a favourable and quantifiable impact on the Hungarian economy as a whole, despite the occasionally still persistent and considerable flaws in the institutional environment, planning and execution. The favourable impacts are expected to increase once the problems identified regarding STI policy governance and Fund management are addressed in line with the recommendations in this report.